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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
1756	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/721,069	ITOH, MUNEHARU	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *7-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/26/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The examiner acknowledges the addition of claims 20-22 set forth in the preliminary amendment filed on Dec. 1, 2004. Claims 1-22 are pending.

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-6 and 20-22, drawn to toners, classified in class 430, subclass 110.2.

II. Claims 7-16, drawn to image forming methods, classified in class 430, subclass 125.

III. Claims 17-19, drawn to image forming apparatuses, classified in class 399, subclass 350.

3. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process, such as an imaging

process comprising the steps of developing an electrostatic latent image formed on a photoconductive member with the toner of Group I, and fixing the toned image to surface of the photoconductive medium to form an ink-acceptable printing plate. Such a process does not require transfer of the toner image and the use of cleaning blade to remove the residual toner remaining on the surface of the photoconductive medium after transfer as recited in the process claims of Invention II.

Inventions II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as an imaging process that develops the electrostatic latent image with a toner other than the toner recited in the claims of Group II. The apparatus in Invention III does not require the particular toner recited in the claims of Group II.

Inventions I and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of

operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different functions and effects. The invention of Group I is drawn to a particular toner. The invention of Group III is drawn to an image forming apparatus comprising a cleaning blade. The apparatus of Group III does not require the particular toner of Group I. The toner in Group I can be used in imaging apparatuses that do not comprise a cleaning blade, but comprise a cleaning brush.

Because these inventions are distinct for the reasons given above and have acquired a separate status because of their recognized divergent subject matter, and as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. D. Hanson (Reg. No. 27,133) on Feb. 15, 2005, an oral election was made with traverse to prosecute the invention of Group I, claims 1-6 and 20-22. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 7-19 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. The disclosure is objected to because of the following informalities:

(1) The specification at page 18, lines 6-8, discloses that the cleaning blade has a hardness (JIS-A) in the range of 60-90, preferably 65-80, and more preferably 68-75. The specification discloses that the hardness (JIS-A) is measured according to JIS K 6301.

However, the instant specification does not define the standard JIS K 6301. Nor does the specification disclose the experimental conditions and criteria (e.g., temperature, pressure, load, etc.) under which the hardness is determined. Furthermore, the specification does not disclose the date or the particular version of JIS K 6301 that was used.

The determination of the hardness (JIS-A) is essential matter, since it is necessary to describe and enable the instant claimed subject matter, particularly of claim 20. Essential subject matter must be disclosed in the specification as filed.

Applicant is reminded that essential subject matter cannot be incorporated by reference to non-patent literature, but must be fully disclosed in the specification as filed. MPEP 608.01(p)(I)(A) (8th edition, Rev. 2. May 2004).

(2) The instant specification at page 18, lines 11-12, discloses that the cleaning blade has a "rebound resilience" in the range of 40-70%. The specification at page 18, lines 14-15, discloses that the "rebound resilience . . . may be measured, for instance, according to Lupke method (JIS K 6255)."

However, the instant specification neither defines the standard JIS K 6255 nor the Lupke method. Nor does the specification disclose the experimental conditions and criteria (e.g., temperature, pressure, etc.) under which the "rebound resilience" is determined. Furthermore, the specification does not disclose the date or the particular version of JIS K 6255 that was used.

The determination of the "rebound resilience" is essential matter, since it is necessary to describe and enable the instant claimed subject matter, particularly of claim 21. Essential subject matter must be disclosed in the specification as filed.

(3) The use of trademarks, e.g., "Henschel mixer [sic: HENSCHEL MIXER] at page 29, line 24, of the specification, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicant should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

6. The examiner notes that the instant specification determines the "average circle degree" recited in the instant claims by the formula disclosed at page 10, paragraphs 0025-0026. The specification further discloses in paragraph 0026 that the average circle degree may be measured with "flow type particle projection image analyzers, such as FPIA-1000 or FPIA-2000, products of Sysmex Corporation."

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 20 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point

out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 is indefinite in the phrase "cleaning blade has a hardness (JIS-A) in the range of 60-90."

It is not clear what is the scope of the limitation. The instant specification does not describe under what conditions the cleaning blade has said hardness. The instant specification at page 18, lines 6-8, discloses that the hardness (JIS-A) of the cleaning blade was "measured according to JIS K 6301." However, the instant specification does not define the standard JIS K 6301. The instant specification does not disclose the experimental conditions and criteria used in the standard to determine the hardness, nor the date or version of JIS K 6301. Standards can and do change over time: hence, it is critical that the version of JIS K 6301 that was used be specified.

Claim 21 is indefinite in the phrase "cleaning blade has a rebound resilience in the range of 30-70%."

It is not clear what is the scope of the limitation. The instant specification does not describe under what conditions the cleaning blade has said rebound resilience. The instant specification at page 18, lines 14-15, discloses that rebound resilience of the cleaning blade "may be measured, for instance, according to Lupke method (JIS K 6255)." However, the instant

specification neither defines the standard JIS K 6255 nor the Lupke method. The instant specification does not disclose the experimental conditions and criteria used in the standard to determine the rebound resilience, nor the date or version of JIS K 6255. Standards can and do change over time: hence, it is critical that the version of JIS K 6255 that was used be specified.

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 20 and 21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

(1) Instant claim 20 recites that the "cleaning blade has a hardness (JIS-A) in the range of 60-90."

The instant specification at page 18, lines 6-8, merely discloses that the hardness (JIS-A) of the cleaning blade was "measured according to JIS K 6301." The instant specification does not define the standard JIS K 6301. The instant specification does not disclose the experimental conditions and criteria used in the standard to determine the hardness, nor what version or date of the standard that was used. Furthermore, the organizations implementing the standard JIS K 6301 have the authority to modify it, so any connection the instant claims may have to this standard, as recited, may vary over time. If the standard were to change, the disclosure would no longer support the claim limitations, and therefore the claim limitations would not be enabled.

Accordingly, it would require undue experimentation for a person having ordinary skill in the art to determine the experimental parameters needed to obtain the instantly claimed numerical range.

(2) Instant claim 21 recites that the "cleaning blade has a rebound resilience in the range of 30-70%."

The instant specification at page 18, lines 14-15, merely discloses that the rebound resilience of the cleaning blade "may be measured, for instance, according to Lupke method (JIS K 6255)." The instant specification neither defines the

Lupke method nor the standard JIS K 6255. The instant specification does not disclose the experimental conditions and criteria used in the standard to determine the rebound resilience, nor what version or date of the standard that was used. Furthermore, the organizations implementing the standard JIS K 6255 have the authority to modify it, so any connection the instant claims may have to this standard, as recited, may vary over time. If the standard were to change, the disclosure would no longer support the claim limitations, and therefore the claim limitations would not be enabled.

Accordingly, it would require undue experimentation for a person having ordinary skill in the art to determine the experimental parameters needed to obtain the instantly claimed numerical range.

11. Claims 20-22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations recited in claims 20-22 are drawn to the particulars of the cleaning blade recited in the preamble of claim 1. Claim 1 is drawn to a toner. Claim 1 recites a "toner

for an image-forming apparatus, which has a cleaning means with a cleaning blade . . . " The recitation "for an image-forming apparatus . . . " is merely a statement of intended use, which does not limit the composition of the toner. Accordingly, the particulars of the cleaning blade recited in instant claims 20-22 do not further limit the toner composition recited in instant claim 1.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1-3 and 20-22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2001/0033982 A1 (Ishikawa).

Ishikawa discloses a toner comprising: (1) colored polymeric core particles comprising a binder resin, a colorant, and a wax, i.e., a parting agent, coated with a layer of particulate resin; and (2) externally added hydrophobic silica particles. The toner has a volume-average particle diameter of 7.8 μm and a 50% circular degree of 0.98. The toner has an absolute charge value of 28 μC/g in a toner layer formed on a developing roller. Paragraphs 0184-0185; example 6 in paragraphs 0305 to 0328; and the table at page 30, example 6. The Ishikawa toner meets the compositional limitations recited in instant claims 1 and 2. The Ishikawa volume-average particle diameter and absolute charge value meet the particle diameter and absolute charge value recited in instant claim 1. The Ishikawa 50% circular degree of 0.98 is within the numerical range of the average circle degree of 0.95-0.995 recited in instant claim 1. According to Ishikawa, the 50% circular degree is determined using a flow type particle image analysis apparatus FPIA-2000 produced by Sysmex Corporation, and corresponds to the cumulative particle size value at 50% of the value determined by the formula "the circumference length of

circle having the same area as that of projected area of particle/circumference length of projected image of particle." Paragraphs 0175-0177. The Ishikawa 50% circular degree appears to be determined in the same manner as the "average circle degree" recited in instant claim 1. Accordingly, it is reasonable to presume that the Ishikawa 50% circular degree of 0.98 meets the average circle degree recited in instant claim 1. The burden is on applicant to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

Ishikawa does not explicitly state that the toner has a core-shell structure as recited in instant claim 3. However, as discussed supra, the Ishikawa toner comprises colored polymeric core particles coated with a layer of particulate resin. Example 6 in paragraphs 0305 to 0328. The Ishikawa cores are obtained by agglomerating primary polymer resin particles comprising a wax and colorant particles. The particles in the agglomerated particles are fused bonded to each other. See Fig. 2; paragraphs 0139 and 0323; and the table at page 29, example 6. The fused-bonded cores in example 6 are coated with a layer of particulate resin. The weight ratio of particulate resin to the primary resin particles is 11.1 w/w%. The value of 11.1 w/w% was determined from the information provided in paragraph 0331. As seen in Ishikawa's Fig. 2, the fused-bonded

cores are coated with a layer of particulate resin. According to Ishikawa, a coating amount of the particulate resin is preferably 3 w/w% or more, preferably of 5 w/w% or more of primary polymer particles. The coating amount provides "coating effects." Paragraph 0138. Because the weight ratio of particulate resin to the primary polymer particles is 11.1%, it is reasonable to presume that the fused-bonded core particles in example 6 are coated with a layer of particulate resin, i.e., a shell. Accordingly, it is reasonable to presume that the toner in example 6 of Ishikawa has a core-shell structure as recited in instant claim 3. The burden is on applicant to prove otherwise. Fitzgerald, supra.

Ishikawa does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means with a cleaning blade to remove a residual toner remaining on a surface of a photoconductive member after transfer" as recited in instant claims 1 and 20-22, wherein instant claims 20-22 further recite particulars of the cleaning blade. However, those recitations are merely statements of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is

capable of performing the intended use, then it meets the claim. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). As discussed above, the toner disclosed by Ishikawa meets the toner compositional limitations recited in instant claims 1 and 20-22. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in instant claims 1 and 20-22 from the toner disclosed by the cited prior art.

15. Claims 1-3, 6, and 20-22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 00/58790 (Masuo), as evidenced by applicant's admissions at page 7, line 27, page 9, lines 23-26, and page 10, lines 7-8, of the instant specification.

US 6,562,535 B1 (US'535), filed under 35 U.S.C. 371, is the national stage of the WO application of Masuo, and therefore must have been an accurate English-language translation of the WO application of Masuo. See US'535, the translation of Masuo, for cites.

Masuo discloses a toner comprising: (1) colored polymeric core particles comprising a binder resin, a colorant,

dipentaerythritol hexamyristate, and a charge control resin, covered with a polymeric shell; and (2) externally added hydrophobic silica particles. The toner has a volume-average particle diameter of 6.3 μm, and an absolute charge value of 36 μC/g in a toner layer formed on a developing roller in an environmental of "normal" temperature of 23°C and "normal" humidity of 50% relative humidity. US'535, col. 21, lines 49-51 and 53-57; example 10 at cols. 31-33; and Table 5 at col. 34, example 10. The charge control resin has a weight average molecular weight of 12,000, which is within the weight average molecular weight range of 2,000 to 50,000 recited in instant claim 6. Col. 31, lines 45-47, and Table 5 at col. 34, example 10. The instant specification at page 7, line 27, identifies dipentaerythritol hexamyristate as a parting agent. The Masuo toner meets the compositional limitations recited in instant claims 1-3 and 6. The Masuo volume-average particle diameter and absolute charge value meet the particle diameter and absolute charge value recited in instant claim 1.

Masuo does not disclose that toner in example 10 has an average circle degree as recited in instant claim 1. However, Masuo discloses that the toner in example 10 has a spheriodicity (dl/ds) of 1.12. See Table 5, example 10. Masuo discloses that the toner particles are "substantially spherical" when the

spheriodicity of the toner particles, which is represented by a ratio (dl/ds) of the length (dl) to the breath (ds) of the toner particle, is preferably 1 to 1.3. US'535, col. 18, lines 30-33. Thus, if the toner particles are perfect spheres the value of dl/ds would be 1. Masuo discloses that the toner in example 10 reproduces images of high resolution, wherein the images have a resolution of "one-dot line" and "one-dot white line." US'355, col. 3, lines 55-56; col. 23, lines 14-20; and Table 5, example 10. This property appears to be the property sought by applicant. The instant specification discloses that "[i]f the average circle degree is below 0.95, the resultant toner is poor in fine line reproduction at a L/L condition . . . a N/N condition . . . and a H/H condition . . ." Specification, page 9, lines 23-26. The instant specification at page 10, lines 7-8, also discloses that "[I]f the toner particles are perfectly spherical, the average circle degree equals to 1. Because the toner particles in example 10 of Masuo are "substantially spherical" and appear to have the property sought by applicant, it is reasonable to presume that the toner particles in example 10 have an average circle degree as recited in instant claim 1. The burden is on applicant to prove otherwise. Fitzgerald, supra.

Masuo does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means . . . " as recited in instant claims 1 and 20-22. However, for the reasons discussed in paragraph 14 above, the recitations in claims 1 and 20-22 are merely statements of intended use. As discussed above, the toner disclosed by Masuo, as evidenced by applicant's admissions at page 7, line 27, page 9, lines 23-26, and page 10, lines 7-8, of the instant specification, meets the toner compositional limitations recited in instant claim 1. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in instant claims 1 and 20-22 from the toner disclosed by the cited prior art.

16. In the event that the toner particles in example 10 of Masuo do not possess the average circle degree recited in instant claim 1, the following rejection is made.

Claims 1-3, 6, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admission at page as evidenced by applicant's admission at page 7, line 27, combined with US 6,096,468 (Ohno). For the reasons discussed in paragraph 15 above, see US'535, the translation of Masuo, for cites.

Masuo discloses a toner as described in paragraph 15 above, which is incorporated herein by reference. The toner particles are obtained by a suspension polymerization process. US'536, col. 32, lines 40-59.

Masuo does not disclose that the toner in example 10 has an average circle degree as recited in instant claim 1. However, Masuo discloses that it is preferred that the toner particles are "substantially spherical as demonstrated by a ratio (dl/ds) of the length (dl) to the breath (ds) [of the toner particle] of preferably 1 to 1.3." US'535, col. 18, lines 30-33. Masuo discloses that such a spherical toner can be obtained by the suspension polymerization method. Col. 18, lines 36-37. Masuo discloses that when a "substantially spherical" toner is used as a one-component developer, the "transfer efficiency of a toner image on a photosensitive member to a transfer medium is enhanced." US'535, col. 19, lines 33-36.

Ohno discloses that when toner particles are made to have an average circularity of from 0.920 to 0.995, preferably from 0.950 to 0.995 in its circularity frequency distribution, the "toner having a small particle diameter can be greatly be improved in transfer performance . . . and also can greatly be improved in the developability of low potential latent images. Such tendencies are very effectively appear especially when a

digital system of minute spot latent images are developed or when toner images are transferred may times through the intermediate transfer member to form a full-color image, bringing about a good compatibility with image forming apparatus." Col. 8, lines 43-55. The improved transfer performance disclosed by Ohno appears to be the property sought by Masuo for using "substantially spherical" toners. The Ohno average circularity is determined by a formula that is identical to the formula used in determining the average circle degree recited in instant claim 1. Ohno discloses that the average circularity is measured with the "flow type particle projection image analyzer" FPIA-1000, manufactured by Toa Iyou Denshi K.K. See Ohno, col. 9, lines 6-40, and paragraph 6, supra. Ohno also discloses that the average circularity of the toner can be controlled by adjusting the pH of an aqueous medium in the granulation step in suspension polymerization. Col. 9, lines 1-5.

It would have been obvious for a person having ordinary skill in the art to adjust the pH in the granulation step in suspension polymerization method used to obtain the toner particles in example 10 of Masuo as taught by Ohno, such that the resultant toner particles have an average circularity of 0.95 to 0.995 as recited in instant claim 1, because that person

would have had a reasonable expectation of successfully obtaining a toner having improved transfer performance and developability of low potential latent images as disclosed by Ohno.

Masuo does not disclose that its toner is a toner "for an image-forming apparatus, which has a cleaning means . . . " as recited in instant claims 1 and 20-22. However, for the reasons discussed in paragraph 14 above, the recitations in claims 1 and 20-22 are merely statements of intended use. As discussed above, the toner rendered obvious over the teachings of Masuo, as evidenced by applicant's admission at page 7, line 27, of the instant specification, combined with Ohno, meets the toner compositional limitations recited in instant claim 1. Accordingly, the recitation "for an image forming apparatus, which has a cleaning means with a cleaning blade . . . " does not distinguish the toner recited in instant claims 1 and 20-22 from the toner rendered obvious over the cited prior art.

17. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admissions at page 7, line 27, page 9, lines 23-26, and page 10, lines 7-8, of the instant specification, combined with US 6,074,794

(Fushimi). For the reasons discussed in paragraph 15 above, see US'535, the translation of Masuo, for cites.

Masuo, as evidenced by applicant's admissions at page 7, line 27, page 9, lines 23-26, and page 10, lines 7-8, of the instant specification, discloses a toner as described in paragraph 15 above, which is incorporated herein by reference. The toner in example 10 of Masuo has a volume average particle diameter of 6.3 μm. Masuo discloses that "[I]n order to enhance resolution to obtain images of high definition, it is particularly desirable that the volume average particle diameter of the toner be controlled to preferably 2 to 9 μm, more preferably 3 to 8 μm." US'535, col. 18, lines 16-20.

Masuo does not disclose that the toner in example 10 has the particle diameter distribution recited in instant claim 5.

Fushimi discloses toner particles having a volume average particle diameter of 6.2 μm and comprising 36% by number of particles having a diameter of 4 μm or less, based on the total number of particles, and 0.0 % by volume of particles having a diameter of 12 μm or more. See the yellow toner in Table 5, col. 12. The volume average particle diameter and particle distribution of 36 % by volume are within the ranges of 3-8 μm and 3-70 number percent recited in instant claims 1 and 5, respectively. The volume average particle diameter is also

within the teachings of Masuo. Fushimi discloses that toner particles used in a "single-type" or two-component developer may have a volume average diameter of from 5 to 9 μm, and may comprise particles having a diameter of 4 μm or less in an amount of not more than 40% of the total number of toner particles, and particles having a particle diameter of at least 12 μm in an amount of no more than 10% of the total volume of the toner particles. Col. 5, lines 33-39; and col. 7, lines 3-4. When the volume average particle diameter is greater than 9 μm, the toner image lacks sharpness due to the toner dispersion of the image. When the volume average is less than 5 μm or when particles having a diameter of 4 μm or less are present in an amount of more than 40% of the total number of the toner particles, the toner is apt to be excessively charged so that the developing efficiency of the toner and image reproducibility are lowered. Col. 5, lines 40-52. When particles having a diameter of at least 12 μm are present in an amount greater than 10% of the total volume of particles, image reproducibility is lowered. Col. 5, lines 52-55. Thus, the prior art recognizes that the volume average particle diameter and particle size distributions are result-effective variables. The variation of result-effective variables is presumably within the skill of the ordinary worker in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Fushimi, to adjust, through routine experimentation, the particle size of toner particles in example 10 of Masuo, such that the resultant toner particles have a volume average diameter of 6.2 μm and comprise 36% by number of particles having a diameter of 4 μm or less, based on the total number of particles, and 0.0 % by volume of particles having a diameter of 12 μm or more, because that person would have had a reasonable expectation of successfully obtaining a toner having good developing efficiency and providing sharp color toner images and good image reproducibility.

18. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuo, as evidenced by applicant's admission at page 7, line 27, combined with Ohno, as applied to claim 1 above, further combined with Fushimi. For the reasons discussed in paragraph 15 above, see US'535, the translation of Masuo, for cites.

Masuo, as evidenced by applicant's admission at page 7, line 27, combined with the teachings of Ohno render obvious a toner as described in paragraph 16 above, which is incorporated herein by reference.

Neither reference discloses toners having the particle diameter distribution recited in instant claim 5.

Fushimi discloses toner particles having a volume average particle diameter of 6.2 μm and comprising 36% by number of particles having a diameter of 4 μm or less, based on the total number of particles, and 0.0 % by volume of particles having a diameter of 12 μm or more. The discussions of Fushimi and Masuo in paragraph 17 above are incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Fushimi, to adjust, through routine experimentation, the particle size of toner particles rendered obvious over the combined teachings of Masuo, as evidenced by applicant's admission at page 7, line 27, combined with Ohno, such that the resultant toner particles have a volume average diameter of 6.2 μm and comprise 36% by number of particles having a diameter of 4 μm or less, based on the total number of particles, and 0.0 % by volume of particles having a diameter of 12 μm or more. That person would have had a reasonable expectation of successfully obtaining a toner having good developing efficiency and providing sharp color toner images and good image reproducibility.

19. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishikawa combined with Japanese Patent 2000-221726 (JP'726). See the Japanese Patent Office (JPO) machine-assisted translation of JP'726 and JP'726 for cites.

Ishikawa discloses a toner as described in paragraph 14, which is incorporated herein by reference.

Ishikawa does not disclose that a toner comprising an external additive present on the surface of the toner particle as recited in instant claim 4. However, as discussed in paragraph 14 above, the toner in example 6 of Ishikawa comprises externally added hydrophobic silica particles. Ishikawa does not limit the type of external additives used. Paragraphs 0120-0121.

JP'726 discloses a toner comprising toner particles and 0.1 to 1 wt% of fine hydrophobic silica particles, which include aggregates having particle sizes (i.e., diameters) of 0.2 to 0.4 μm. JP'726 discloses that fine hydrophobic silica is attached to the toner particles in an amount of 0.1 to 1 wt%, and that the aggregates are attached to the surface of the toner particles such as to satisfy the relationship $1.5 \leq AM^2/N \leq 3.0$, where A is the amount (wt%) of the adhered fine hydrophobic silica particles, M is number average particle diameter (μm) of the toner particles, and N is the number of fine hydrophobic

silica particles adhered aggregates having particle sizes of 0.2 to 0.4 μm. JP'726, paragraph 0004; translation, paragraph 0004. (Note that the term AM2/N in the translation should be read as AM^2/N.) According to JP'726, such a toner does not cause surface fog after it is allowed to stand in an environment of high temperature. Translation, paragraph 0003. JP'726 discloses that in order to adhere the hydrophobic silica particles and the aggregates of silica particles having particle sizes of 0.2 to 0.4 μm to the surface of the toner particles in an amount that satisfies the above formula, the hydrophobic silica and the toner particles can be mixed using an impeller having a peripheral speed of 13-23 m/sec. Translation, paragraph 0009, lines 5-8

The toner particles in example 6 of Ishikawa have a number average particle size of 6.8 μm. The value of 6.8 μm was determined from the information provided in the table at page 30 of Ishikawa, example 6, i.e., [volume average particle diameter of 7.8 μm/(ratio of volume average particle diameter to number average particle diameter of 1.15)]. In example 6 of Ishikawa, 0.6 parts of hydrophobic silica is added to 100 parts of toner particles. Ishikawa, paragraph 0324. To satisfy the JP'726 relationship $1.5 \leq AM^2/N \leq 3.0$, where A is 0.6 wt% and M is the

toner particles number average particle size of 6.8 μm, the number of silica aggregates having particle sizes of 0.2 to 0.4 μm ranges from 8 to 18 particles. The range of 8 to 18 particles is within the range of 3 to 500 particles recited in instant claim 4. The particle sizes of 0.2 to 0.4 μm are within the particle size range of 0.1 to 3 μm recited in instant claim 4.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'726, to mix the hydrophobic silica particles with the toner particles in example 6 of Ishikawa as taught by JP'726, such that the resultant toner comprises from 8 to 18 aggregated silica particles having particle sizes of 0.2 to 0.4 μm adhered to the surface of the toner particles, thereby satisfying the JP'726 relationship $1.5 \leq AM^2/N \leq 3.0$. That person would have had a reasonable expectation of successfully obtaining a toner that provides good quality images without fog even in environments of high temperature as disclosed by JP'726.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be

reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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